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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/926,335	10/23/2001	Hiroyuki Fukada	214935US2PCT	6475

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EXAMINER

AMINZAY, SHAIMA Q

ART UNIT	PAPER NUMBER
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2684

DATE MAILED: 05/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/926,335

Applicant(s)

FUKADA, HIROYUKI

Examiner

Shaima Q. Aminzay

Art Unit

2684

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 December 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 October 2001 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>1/3/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

The following office action is in response to Amendment, December 6, 2004.

Claims 1-12 are pending.

Claim Objections

1. Claim 7 is objected to under 37 CFR 1.75(c) as being improper, the phrase "...modulate..." in line 3 of claim 7 should be "...demodulate...". Applicant's correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C.102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –
(a) The invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claim 1-2, 9, and 11 are rejected under 35 U.S.C. 102(a) as being anticipated by Ogino (Tooru Ogino International Publication Number WO 00/02,338).

Regarding claim 1, and 11, Ogino teaches a fading pitch detection comprising (see for example, Figure 6, abstract, lines 11-20, [0024], lines 1-13): a plurality of demodulators (102), connected to a shared reception system (104, and 112 for fading pitch; 104, and 106 for speech reception), each for demodulating a reception signal through each multipath (paragraph [0032], lines 9-13); a synthesizer (104) for synthesizing signals outputted from the plurality of demodulators with a phase difference in each multipath being maintained (paragraph [0032], lines 9-33); and a fading pitch detector (112) for detecting a fading pitch based upon an output signal from the synthesizer (paragraph [0032], lines 23-26, and further see for example, paragraphs [0016], [0020], and [0035]).

Regarding claim 2, Ogino teaches claim 1, and further, teaches that the fading pitch detection is designed for a CDMA system (paragraph [0022], lines 1-4; paragraph [0025], lines 1-2), and the plurality of demodulators is a plurality of despreaders (paragraph [0025], lines 1-10), connected to the shared reception system for performing despreading for each multipath (paragraph [0025], lines 6-19).

Regarding claim 9, Ogino teaches claim 1, and further teaches a mobile information terminal comprising the fading pitch detection (paragraph [0013], lines 1-5; paragraph [0020], lines 1-5; paragraph [0023], lines 1-5).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action

(a) Patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made

3. Claims 3-8, 10, and 12 are rejected under 35 U.S.C.103(a) as being unpatentable over Ogino (Tooru Ogino International Publication Number WO 00/02,338) in view of Kaku (Kaku U. S. Patent ,5812,593).

Regarding claim 7, Ogino discloses a fading pitch detection apparatus (see for example, Figure 6, abstract, lines 11-20, [0024], lines 1-13), comprising: a plurality of demodulators (Figure 6 (102)), connected to a shared reception system (104, and 112 for fading pitch; 104, and 106 for speech reception), each configured to demodulate a reception signal through each multipath (paragraph [0032], lines 9-13); a synthesizer (Figure 6 (104)) configured to synthesize signals outputted from the plurality of demodulators with a phase difference in each multipath being maintained (paragraph [0032], lines 9-33), a transforming device configured to transform an input signal from the synthesizer to electric power (see for example, paragraph [0035], lines 9-16; [0038], lines 1-15; [0043], lines 1-5), a fading pitch estimation device configured to calculate a facing pitch

based upon a comparison result between the [auto-correlated value and] a predetermined threshold value (see for example, paragraph, paragraph [0024], lines 1-13, [0028], lines 5-10, [0035], lines 16-30, [0041], lines 31-38, and [0051], lines 1-7--10, [0070], lines 1-11).

Ogino does not specifically teach the auto-correlation detection, however, Ogino teaches comparing the transforming signal to a predetermined threshold value and the correlation detection (see for example, paragraph, paragraph [0024], lines 1-13, [0028], 5-10, comparing to predetermined threshold, and paragraph [0038], lines 12-15, [0063], lines 1-3, [0064], lines 1-9, correlator and correlation detection).

In related art dealing with detection of fading signals (see for example column 3, lines 62-67), Kaku discloses auto-correlation detection (see for example, column 4, lines 1-36, lines 42-44, column 9, lines 1-10, auto-correlation detection and calculation).

It would have been obvious to one of ordinary skill in the art at the time invention was made to include Kaku's auto-correlation detection into Ogino's fading pitch to provide a system that finds the fading pitch and estimate the speed of mobile terminal to reduce power conception in extension of talk time (Ogino, paragraphs [0070], lines 1-11), and to provide a system with greatly reduced in processing steps and "leading to a reduction in the overall power consumption of the receiver" (Kaku, column 10, lines 17-24).

Regarding claim 12, Ogino discloses a method for detecting a fading pitch (see for example, Figure 6, abstract, lines 11-20, [0024], lines 1-13), comprising:

- demodulating a reception signal through each multipath by a shared reception system (paragraph [0032], lines 9-13); synthesizing (Figure 6 (104)) demodulated signals for each multipath with a phase difference in each multipath being maintained so as to output a synthesized signal (paragraph [0032], lines 9-33); transforming the synthesized signal to electric power (see for example, paragraph [0035], lines 9-16; [0038], lines 1-15; [0043], lines 1-5), calculating an auto-correlated value of an electric power output signal; comparing the auto-correlated value with a predetermined threshold value (see for example, paragraph [0024], lines 1-13, [0028], lines 5-10, [0041], lines 31-38, and [0051], lines 1-7), and calculating a fading pitch based upon a comparison result (see for example, paragraph [0035], lines 9-16; [0038], lines 1-15; [0043], lines 1-5).

Ogino does not specifically teach the auto-correlation detection, however, Ogino teaches calculating electronic power output signal such as comparing the transforming signal to a predetermined threshold value and the correlation detection (see for example, paragraph, paragraph [0024], lines 1-13, [0028], 5-10, comparing to predetermined threshold, and paragraph [0038], lines 12-15, [0063], lines 1-3, [0064], lines 1-9, correlator and correlation detection).

In related art dealing with detection of fading signals (see for example column 3, lines 62-67), Kaku discloses auto-correlation detection (see for example, column 4, lines 1-36, lines 42-44, column 9, lines 1-10, auto-correlation detection

and calculation).

It would have been obvious to one of ordinary skill in the art at the time invention was made to include Kaku's auto-correlation detection into Ogino's fading pitch to provide a system that finds the fading pitch and estimate the speed of mobile terminal to reduce power conception in extension of talk time (Ogino, paragraphs [0070], lines 1-11), and to provide a system with greatly reduced in processing steps and "leading to a reduction in the overall power consumption of the receiver" (Kaku, column 10, lines 17-24).

Regarding claim 3, Ogino discloses all the limitations in claim 1, and further, Ogino discloses a fading pitch estimation device for calculating the fading pitch based upon a comparison result between the [auto-correlated value and] a predetermined threshold value (see for example, paragraph, paragraph [0024], lines 1-13, [0028], lines 5-10, [0035], lines 16-30, [0041], lines 31-38, and [0051], lines 1-7--10, [0070], lines 1-11).

Ogino does not specifically teach the auto-correlation detection, however, Ogino teaches calculating electronic power output signal such as comparing the transforming signal to a predetermined threshold value and the correlation detection (see for example, paragraph, paragraph [0024], lines 1-13, [0028], 5-10, comparing to predetermined threshold, and paragraph [0038], lines 12-15, [0063], lines 1-3, [0064], lines 1-9, correlator and correlation detection).

In related art dealing with detection of fading signals (see for example column

3, lines 62-67), Kaku discloses auto-correlation detection (see for example, column 4, lines 1-36, lines 42-44, column 9, lines 1-10, auto-correlation detection and calculation).

It would have been obvious to one of ordinary skill in the art at the time invention was made to include Kaku's auto-correlation detection into Ogino's fading pitch to provide a system that finds the fading pitch and estimate the speed of mobile terminal to reduce power conception in extension of talk time (Ogino, paragraphs [0070], lines 1-11), and to provide a system with greatly reduced in processing steps and "leading to a reduction in the overall power consumption of the receiver" (Kaku, column 10, lines 17-24).

Regarding claims 4, and 8, Ogino and Kaku teach claims 3, 7, and Ogino further teaches the controller (Figure 7, element 103) operates intermittently under the control of the fading pitch circuit (Figure 6, element 112, and paragraph [0041], lines 42-45) and the fading pitch estimation is calculated based upon the synthesizer (104) output time (seer for example, paragraph [0041], lines 45-45, and paragraph [0038], lines 1-15), and calculating the values based upon the minimum value of the time difference (seer for example, paragraph [0016], lines 14-21).

Regarding claim 5, Ogino and Kaku teach claim 4, and Ogino further teaches the fading pitch calculating in linear form (see for example, paragraph [0041],

equation (1), and lines 19-30).

Regarding claim 6, Ogino and Kaku teach claim 3, and Ogino further teaches the fading pitch (112) transforming an input signal including the fading-based variation to an electrical signal and calculating the value of an output signal (paragraph [0035], lines 9-16; [0038], lines 1-15; [0043], lines 1-5), and estimating the fading pitch value (paragraph [0035], lines 16-30); a synthesizer (104) for synthesizing signals outputted from the plurality of demodulators with a phase difference in each multipath being maintained (paragraph [0032], lines 9-15); and a fading pitch detector (112) for detecting a fading pitch based upon an output signal from the synthesizer (paragraph [0032], lines 23-26).

Regarding claim 10, Ogino and Kaku teach claim 7, and Ogino further teaches a mobile information terminal comprising the fading pitch detection (paragraph [0013], lines 1-5; paragraph [0020], lines 1-5; paragraph [0023], lines 1-5).

Response to Arguments

Note: This office action has been restructured for clarity. Examiner did not change the ground of rejection; but has changed the argument of the rejection to reflect the new amendment of the claims.

4. Applicant's arguments filed December 6, 2004 have been fully considered but the arguments are not persuasive.

The applicant's argued features in the claim, i.e., providing a fading pitch detection comprising a plurality of demodulators connected to a shared reception system, each for demodulating a reception signal through each multipath; a synthesizer for synthesizing signals outputted from the plurality of demodulators with a phase difference in each multipath being maintained, and a fading pitch detector for detecting a fading pitch based upon an output signal from the synthesizer to be established read upon Ogino (Tooru Ogino International Publication Number WO 00/02,338).

Ogino discloses fading pitch detection comprising (see for example, Figure 6, abstract, lines 11-20, [0024], lines 1-13): a plurality of demodulators (see for Figure 6 (102)) connected to a shared reception system (see for example, 104, and 112 for fading pitch, 104, and 106 for speech reception), each for

demodulating a reception signal through each multipath (see for example Figure 6, paragraph [0032], lines 9-13); a power combiner unit (synthesizer (104)) for synthesizing signals outputted from the plurality of demodulators with a phase difference in each multipath being maintained (paragraph [0032], lines 9-33, with different delay time (phase difference)), and a fading pitch detector (Figure 6 (112)) for detecting a fading pitch based upon an output signal from the synthesizer (paragraph [0032], lines 23-26, and further see for example, paragraphs [0016], [0020], and [0035]).

Further, the applicant's argued features in the claim, i.e., providing a fading pitch estimation device configured to calculate a facing pitch based upon a comparison result between the auto-correlated value and a predetermined threshold value to be established read upon Ogino (Tooru Ogino International Publication Number WO 00/02,338) in view of Kaku (Kaku U. S. Patent ,5812,593).

Ogino discloses a fading pitch estimation device configured to calculate a facing pitch based upon a comparison result between the predetermined threshold value (see for example, paragraph, paragraph [0024], lines 1-13, [0028], 5-10, lines 5-10, [0035], lines 16-30, [0041], lines 31-38, and [0051], lines 1-7--10, [0070], lines 1-11). Ogino does not teach auto-correlation detection, however, Ogino teaches comparing the transforming signal to a predetermined threshold value and the correlation detection (see for example, paragraph, paragraph [0024], lines 1-13, [0028], comparing to predetermined threshold, and

paragraph [0038], lines 12-15, [0063], lines 1-3, [0064], lines 1-9, correlator and correlation detection). In related art dealing with detection of fading signals (see for example column 3, lines 62-67), Kaku discloses auto-correlation detection (see for example, column 4, lines 1-36, lines 42-44, column 9, lines 1-10, auto-correlation detection and calculation).

Ogino and Kaku are both analogous to the applicants teaching, that's why they do obviate.

Therefor, Examiner believes the claims are broad enough to be combining Ogina fading pitch with Kaku's auto-correlation. The rejection is maintained.

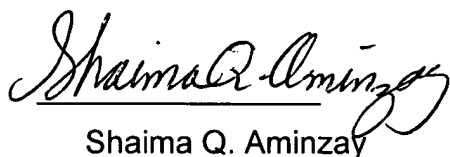
Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action


Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shaima Q. Aminzay whose telephone number is 571-272-7874. The examiner can normally be reached on 7:00 AM -5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on 571-272-7882, the primary examiner, Nick Corsaro can be reached on 571-272-7876. The fax number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Shaima Q. Aminzay

(Examiner)

NICK CORSARO
PRIMARY EXAMINER

Nay Maung

(SPE)

Art Unit 2684

May 4, 2005